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EXAMINER

NGUYEN, SIMON

ART UNIT

PAPER NUMBER

2685

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,299

Applicant(s)

SCHERZER, SHIMON B.

Examiner

SIMON D NGUYEN

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14 and 16-26 is/are rejected.
- 7) ☒ Claim(s) 4, 15 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 5, 7, 10, 18, 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Searle et al. (6,038,459).

Regarding claim 1, Searle discloses a wireless communication system (fig.2a-b), comprising a plurality of radios (transceiver 64) each having one antenna interface; a plurality of antennas (42); a switch matrix (56,58) that is operable to selectively couple the plurality of antennas; and a controller (60) that provides priority to selected ones of a plurality of channels associated with the plurality of radios based upon power and channel quality metrics of the selected ones of the plurality of channels in an operation mode ((column 5 line 41 to column 6 line 19).

Regarding claim 18, this claim is rejected for the same reason as set forth in claim 1.

Regarding claims 3, 20, Searle further discloses a receiver (62) that is operable to calculate a C/I ratio for each channel, wherein the receiver is coupled to the controller and wherein the controller is operable to utilize C/I ratios to

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assign selected ones of the plurality of channels to the plurality of antenna (column 5 line 52 to column 6 line 4).

Regarding claims 5, 21, Searle further discloses that the system minimizes a forward-link power (column 6 lines 64-67).

Regarding claim 7, Searle further discloses in the prior art a system that is operable to successively assign (for example, channels are allocated repeatedly from sub-array to sub-array) a plurality of channel to the plurality of antennas (column 2 lines 15-20).

Regarding claim 10, Searle further discloses a second switch matrix (56) that is operable to switch reverse-link signals under the control of the controller (60) (fig.2b, column 5 lines 41-51, column 6 lines 12-14).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 11-13, 16-17, 23-24, 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Raleigh et al. (6,452,981).

Regarding claim 11, Raleigh discloses a method for operating a wireless communication system (abstract, figs.11, 13, 15, 17, 19-21), comprising:

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generating concurrent forward-link transmit signals for a plurality of channels (column 26 line 53 to column 27 line 7); determining a current forward-link power for each of the plurality of channels (column 24 lines 14-55, column 25 lines 41-61); and assigning the plurality of channels to a plurality of antennas for transmission of the signals (column 27 lines 14-18) to minimize transmit power (column 22 lines 5-15).

Regarding claim 23, this claim is rejected for the same reason as set forth in claim 11, wherein Raleigh further discloses measuring a channel quality metric associated with a respective reverse link for each of channels (column 6 lines 3-5, column 9 line 42, column 30 lines 10-19, column 34 lines 50-53).

Regarding claims 12, 24, Raleigh further discloses the assignment is applied in a fading rate of Raleigh fading (column 12 line 43, column 27 line 37) and a frequency hopping averaging (column 36 line 28).

Regarding claims 13, 26, Raleigh further discloses the assignment is successive (column 24 lines 61-64, column 25 lines 24-25).

Regarding claim 16, Raleigh further discloses the step of determining (calculating) power for assignment (column 22 lines 5-28, column 24 lines 14-55, column 25 lines 41-61, column 26 lines 14-29).

Regarding claim 17, Raleigh further discloses switching reverse link signals (column 23 lines 40-42, column 26 line 20).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 8-9, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Searle et al. (6,038,459) in view of Raleigh et al. (6,452,981).

Regarding claims 2, 8-9, Searle discloses the system used in multi-path conditions (column 6 line 10). However, Searle does not specifically disclose the system used in a spatial diversity, Raleigh fading and frequency hopping.

Raleigh discloses the same type of the invention, in which the system used in a spatial diversity (fig.13) and the system calculates and controls a Raleigh fading (column 33 line 52) for an adaptive frequency hopped scheme (column 36 line 28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Searle, modified by Raleigh to implement the Raleigh fading related the frequency hopping in selecting channels for plurality of antennas in order to improve the channel selection performance in a base station.

7. Claims 6, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Searle et al. (6,038,459) in view of Heath, Jr. et al. (6,298,092).

Regarding claims 6, 22, Searle does not specifically disclose the assignment is randomly.

Heath, in the same type of invention, discloses two methods for assigning channels to antennas, a first one is a successive assignment from a plurality of channels to a plurality of antennas (mapping scheme) (column 9 lines 8-13) and a second one is a random assignment from a plurality of channels to a plurality of antenna (column 9 lines 58-60, column 10 lines 8-17). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Raleigh, modified by Heath to reduce a degradation of channel or antenna, multi-path fading, bit error rates..etc., in order to improve the channel selection performance in a base station.

8. Claims 14, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raleigh et al. (6,452,981) in view of Heath, Jr. et al. (6,298,092).

Regarding claims 14, 25, Raleigh does not specifically disclose the assignment is randomly.

Heath, in the same type of invention, discloses two methods for assigning channels to antennas, a first one is a successive assignment from a plurality of channels to a plurality of antennas (mapping scheme) (column 9 lines 8-13) and a second one is a random assignment from a plurality of channels to a plurality of antenna (column 9 lines 58-60, column 10 lines 8-17). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to have Raleigh, modified by Heath to reduce a degradation of channel or antenna, multi-

path fading, bit error rates..etc., in order to improve the channel selection performance in a base station.

Allowable Subject Matter

9. Claims 4, 15, 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 4, 15, 27, the prior art of record does not specifically disclose calculating power matrix $P_{i,k}$ being equal to $V_k (C/I)_{k,k} / (C/I)_{i,k}$, wherein V_k is a respective forward-link power associated with a k th channel, $(C/I)_{k,k}$ is a respective carrier-to-interference C/I ratio for the k th channel as received on an antenna that is currently being using the k th channel, and $(C/I)_{i,k}$ is the respective C/I ratio associated with the k th channel as received by the i th antenna.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Simon Nguyen whose telephone number is (703) 308-1116. The examiner can normally be reached on Monday-Friday from 7:00 AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban, can be reached on (703) 305-4385.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 306-0377.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Hand-delivered response should be brought to Crystal Park II,
2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Simon Nguyen

July 30, 2004

A handwritten signature in black ink that reads "Simon Nguyen". The signature is written in a cursive, flowing style.